REMARKS

Applicants respectfully traverse the rejections and request reconsideration.

Claim Rejections under 35 USC § 103(a)

Claims 1-2, 14-22 and 24-40 are rejected under 35 U.S.C. § 103(a) based on U.S. Patent No. 6,597,363 (Duluk) in view of U.S. Patent No. 5,446,836 (Lentz).

The Office Action acknowledges that Duluk does not specifically disclose "generating coordinate data representing an initial rasterization starting point estimate." Nevertheless, the Office Action asserts that Duluk inherently teaches starting/ending points during rasterization. Further, the Office Action asserts that Lentz teaches a starting point to decrease rasteriztion time. However, both Duluk and Lentz both teach a starting point that lies outside of the tile boundary rather than within the tile boundary.

The Office Action on page 3, line 1, equates the claimed "initial rasterization starting point estimate" with the starting point cited in Duluk at col. 76, lines 25–36 and in Fig. 45. However, Duluk, as cited, instead describes clipping segments of primitives that lie wholly outside the tile (Duluk col. 76, lines 25–28). Duluk starts clipping at an arbitrary starting point, and then determines if a start point (i.e., x0, y0 is shown outside the tile boundary in Fig. 45) is outside the tile boundary. If a starting point of a line lies outside the tile boundary, then Duluk teaches clipping the line outside of the tile from the tile boundary to the start point. (Duluk col. 76, lines 28–30). As shown in Fig. 45, a new line start point is generated outside of the tile boundary. Therefore, Duluk explicitly describes a starting point that lies outside of rather than within the tile (Duluk at col. 76, lines 34–36, 45–46, 50–51 Fig. 45).

In contrast, claim 1 recites, among other things, generating an initial rasterization starting point estimate when the sorted vertex data lies within the tile boundary and after discarding the

sorted vertex data that lie outside of the tile boundary. Therefore, the initial rasterization starting point estimate is generated when the region bits indicate that (1) at least one of the sorted vertex data lies within the current tile being rendered and (2) after discarding the sorted vertex data of primitives that lie outside of the boundary of the current tile being rendered. (Claims 1, 14 and 27). In contrast, Duluk, as cited, explicitly teaches a start point that lies outside the tile. (Duluk col. 76, lines 28–31 and Fig. 45.) Further, Duluk explicitly teaches generating a starting point for the clipped point, such that the clipped point lies on or outside of the tile (Duluk col. 76, lines 34–36, lines 45–46, lines 50–51 and Fig. 45.) Also, Fig. 45 clearly shows the starting point lies outside of the tiled boundary, rather than "within the current tile being rendered." Finally, Fig. 45 also shows the vertex points lying outside of the tiled boundary, rather than discarding the sorted vertex points that lie outside the tile boundary. Therefore, the assertion in the Office Action that Duluk teaches the claimed initial rasterization starting point estimate is contradicted by the explicit language in Duluk teaching vertex points outside of the tile boundary and the starting point that lies outside of the tile boundary, rather than "within the current tile being rendered."

The Office Action states that the step of generating coordinate data for an initial rasterization starting point estimate is necessarily required for displaying a clipped image by a rasterizer. Applicants traverse this point since, just as in a typical rasterization process, one next pixel is generated at a time, and where such next pixel happens to be a point in an object, then such pixel is then rendered with the object information. (See Specification page 10, lines 20–33). However, such pixel was found not by any estimation of such pixel, but simply by the sequential processing of one pixel after another. As such, what is disclosed in Duluk is in contrast to Applicants' claimed subject matter, which avoids the pixel by pixel search of the first point of a primitive outside of the tile boundary by, instead, generating such an initial

rasterization starting point estimate within the current tile boundary after discarding vertex data lying outside the tile boundary.

Lentz, as cited, is directed to the rasterization of a triangle at a starting point outside of the triangle (as also does Duluk), as illustrated in figures 4A, 4B, 5 and 6. (Lentz col. 3, lines 35–45: "A smarter algorithm . . . would advance to the next traversal line when it 'walks' off the edge of a triangle.") In figures 4A, 4B and 5, the starting point is explicitly shown outside of the triangle, as does Duluk, rather than within the current tile. As a result, the Office Action has not shown where Lentz teaches generating the initial rasterization starting point estimate (1) when the region bits indicate that at least one of the sorted vertex data lies within the current tile being rendered and (2) when the sorted vertex data primitives that lie outside the boundary of the current tile are being discarded. Therefore, Lentz fails to make up for the shortcomings of Duluk.

As understood, the combination of Duluk and Lentz would teach generating a starting point outside of the tile boundary (as taught in Duluk), while traversing the bounding box in a left to right (after walking "off" the edge of a triangle, top to bottom scanning process, beginning with the point outside of the triangle, as taught in Lentz. (Lentz col. 3, lines 43–46). Therefore, even if combined, the combination of Duluk and Lentz fails to teach "generating coordinate data representing an initial rasterization starting point estimate when the region bits indicate that at least one of the sorted vertex data lies within the current tile being rendered and discarding the sorted vertex data of primitive that lie outside of the boundary of the current tile being rendered."(Claim 1). As a result, the combination of Duluk and Lentz fails to teach each and every element as arranged in claims 1, 14 and 27. Therefore, the Office Action fails to establish a *prima facie* case of obviousness. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 28 further recites determining an initial rasterization point "within the sorted primitive." As a result of the above described methods, the initial rasterization starting point estimate is more efficiently computed. However, Duluk and Lentz instead teach generating a new start point located outside of, rather than within, the current tile being rendered. Therefore, Duluk and Lentz teach away from the claims because Duluk and Lentz, explicitly teaches generating a new line start point that is outside of the tiled boundary. As a result, the combination of Duluk and Lentz fails to teach each and every element as arranged in claim 28. Therefore, the Office Action fails to establish a *prima facie* case of obviousness.

Dependent Claims 2, 15–26, and 29–40

Applicant further submits that these dependent claims are also allowable in light of the presence of novel and nonobvious elements contained in these claims that are not otherwise present in the independent claims. Applicant also submits that these claims depend from the base claim and the intermediate claims and as dependent therefrom. However, these claims are allowable for at least the reasons the independent claims are allowable.

Applicant notes that a showing where the references teach each and every element for claims 31–38 is not provided in the Office Action. As such, Applicants request allowance of these claims for at least the reasons provided above.

CONCLUSION

For the foregoing reasons, withdrawal of the rejections and allowance of the claims is respectfully requested. If there are any questions or comments regarding this response, the Examiner is encouraged to contact the undersigned at 312-609-7970.

Respectfully submitted,

By: _____
Themi Anagnos
Reg. No. 47,388

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Vedder, Price, Kaufman & Kammholz, P.C.
222 North LaSalle Street
Chicago, Illinois 60601
Telephone: (312) 609-7970
Facsimile: (312) 609-5005